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Two new species of *Hymenochaete* (*Hymenochaetales*) from China

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Abstract — Two new species, *Hymenochaete megaspora* and *Hymenochaete acerosa* are described from Xizang Autonomous Region (Tibet), China. *Hymenochaete megaspora* distinguishes from other species by its large basidiospores and heavily encrusted setae; while *Hymenochaete acerosa* is unique for its acerose setae, loosely interwoven hyphae and relatively large basidiospores.

Key words — *Hymenochaetaceae*, taxonomy, wood-inhabiting fungi

Introduction

Hymenochaete is one of the important genera in *Hymenochaetaceae*. This group of wood-decaying fungi has been studied by several authors in China, who recorded 39 taxa from the country (Dai et al. 2000, Xu et al. 2003, Zhang & Dai 2005, Dai & Niemelä 2006, Dai 2010, 2011, He 2010). Dai (2010a) revised the genus in China systematically and illustrated 23 species. However, in comparison with the total number of known species worldwide (ca. 110), the genus is still poorly known in China, and many species remain undiscovered.

Xizang Autonomous Region (Tibet) and its adjacent areas are largely unknown mycologically. Despite reports on polypores in the region by Dai et al. (2004, 2007a, b) and Yuan & Dai (2008), many species of other groups of wood-decaying fungi are still unrecorded. Recently, during a survey of wood-inhabiting fungi in Xizang Autonomous Region approximately 100 specimens of *Hymenochaete* were collected. Two species are distinctly different from known species of the genus. Therefore they are described as new species in this paper.

Materials & methods

Voucher specimens are deposited in the herbarium of Beijing Forestry University (BJFC), and the microscopic procedure follows Cui & Dai (2008). In the text the

following abbreviations are used: L = mean spore length (arithmetical average of all spores), W = mean spore width (arithmetical average of all spores), Q = variation in the L/W ratios between the specimens studied (quotient of the mean spore length and the mean spore width of each specimen), n = the number of spores measured from given number of specimens. In presenting the size range of spores, 5% of the measurements were excluded from each end of the range, and the measurements were given in parentheses. IKI stands for Melzer's reagent, KOH for 5% potassium hydroxide, and CB is the abbreviation of Cotton Blue. IKI– = inamyloid and nondextrinoid, CB– = acyanophilous. Special color terms follow Petersen (1996).

Taxonomy

Hymenochaete megaspora S.H. He & Hai J. Li, **sp. nov.** Figs. 1–2

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Carpophorum annuum, effusum vel effuso-reflexum, margine leviter elevatum, laxe adnatum, coriaceum, in sicco durum fragileque, 150–600 µm crassum. Superficies pilei griseo-brunnnea vel atro-grisea, tomentosa, concentrice sulcata et zonata. Hymenophorum laeve vel tuberculatum, submurinum vel vinaceo-griseum. Cortex, tomentum et stratum hypharum adsunt; cortex ex hyphis agglutinatis compositus, 10–25 µm crassus. Systema hypharum monomiticum, hyphae generativae sine fibulis, hyalinae vel flavo-brunneae, tenuiter tunicatae vel crasse tunicatae, interdum septatae, rare ramosae, plus minusve intertextae, 2–4 µm diam; setae in hymeniis stratosis abundae, subulatae, acutae, parte superiore cum crystallis incrustatae, (80–)90–120(–140) × 8–13(–14) µm; cystidia desunt; hyphidia hyalina, 2–3 µm in diam; basidia clavata, 4 sterigmatibus praedita, 25–32 × 5–8 µm; sporae late ellipsoideae, IKI–, CB–, (7–)7.5–10(–11) × 5–7 µm.

Type: China. Xizang Autonomous Region, Linzhi County, Lulang, alt 3700 m, on dead branch of *Quercus* (*Fagaceae*), 17.IX.2010 He 328 (**Holotype,** BJFC).

Etymology: *megaspora*, refers to the large basidiospores.

Fruitbody: Annual, effused or effused-reflexed with slightly elevated margins, loosely adnate, easily detached, coriaceous without odour or taste when fresh, becoming hard and brittle when dry, 150–600 µm thick, resupinate part up to 7cm long, reflexed part short and broad, projecting 0.1–0.4 cm. Pileal surface grayish brown to dark gray, silky, tomentose, concentrically sulcate and zonate; margin thin, lighter than pileal surface. Hymenophore smooth or tuberculate, slightly irregularly cracked when old, pale mouse-gray to vinaceous gray; resupinate margin thinning out, indistinct, silky, slightly fimbriate, lighter than hymenophore, cinnamon to yellowish brown, up to 0.5 cm.

Hyphal structure: Hyphal system monomitic; generative hyphae without clamp connections; tissue darkening but otherwise unchanged in KOH.

Subiculum: Cortex, tomentum and hyphal layer present. Cortex composed of strongly agglutinated hyphae, 10–25 µm. Setal layer thickening in old specimens, sometimes a hyphal layer present between rows of setae. Generative hyphae hyaline to yellowish brown, thin- to distinctly thick-walled with a

Fig. 1. Fruitbody of *Hymenochaete megaspora* (He 302, paratype).

narrow lumen, occasionally septate, rarely branched, regularly arranged, more or less interwoven, 2–4 µm in diam.

Stratified hymenium: Hyphae in this layer similar to those in subiculum, yellowish to yellowish brown, thick-walled, more or less agglutinated, interwoven, 2–3.5 µm in diam. Setae abundant, subulate, dark brown, thick-walled with a wide or narrow lumen; tip acute, always encrusted with small crystals; setae projecting up to 80 µm above the hymenium, (80–)90–120(–140) × 8–13(–14) µm; cystidia absent; hyphidia present in sterile specimens, hyaline, slightly conical, 2–3 µm in diam; basidia clavate, with four sterigmata and a simple septum at base, 25–32 × 5–8 µm; basidioles in shape similar to basidia, but smaller.

Spores: Basidiospores broadly ellipsoid, hyaline, thin-walled, smooth, IKI–, CB–, (7–)7.5–10(–11) × 5–7 µm, L = 8.59 µm, W = 5.94 µm, Q= 1.40–1.50 (n = 60/2).

Additional specimens (paratypes) examined: **China. Xizang Autonomous Region**, Linzhi County, Lulang, alt 3700 m, on dead branch of *Quercus* (*Fagaceae*), 16.IX.2010 He 302; 18.IX.2010 He 334; Bomi County, on dead branch of *Quercus* (*Fagaceae*), 19.IX.2010 He 351 (Paratypes, BJFC).

Remarks: *Hymenochaete megaspora* is characterized by large and broadly ellipsoid basidiospores, encrusted setae, and the presence of a cortex. Its basidiospores are similar to those of *H. gigaspora* D.A. Reid (6.5–8.5 × 5.2–6.5

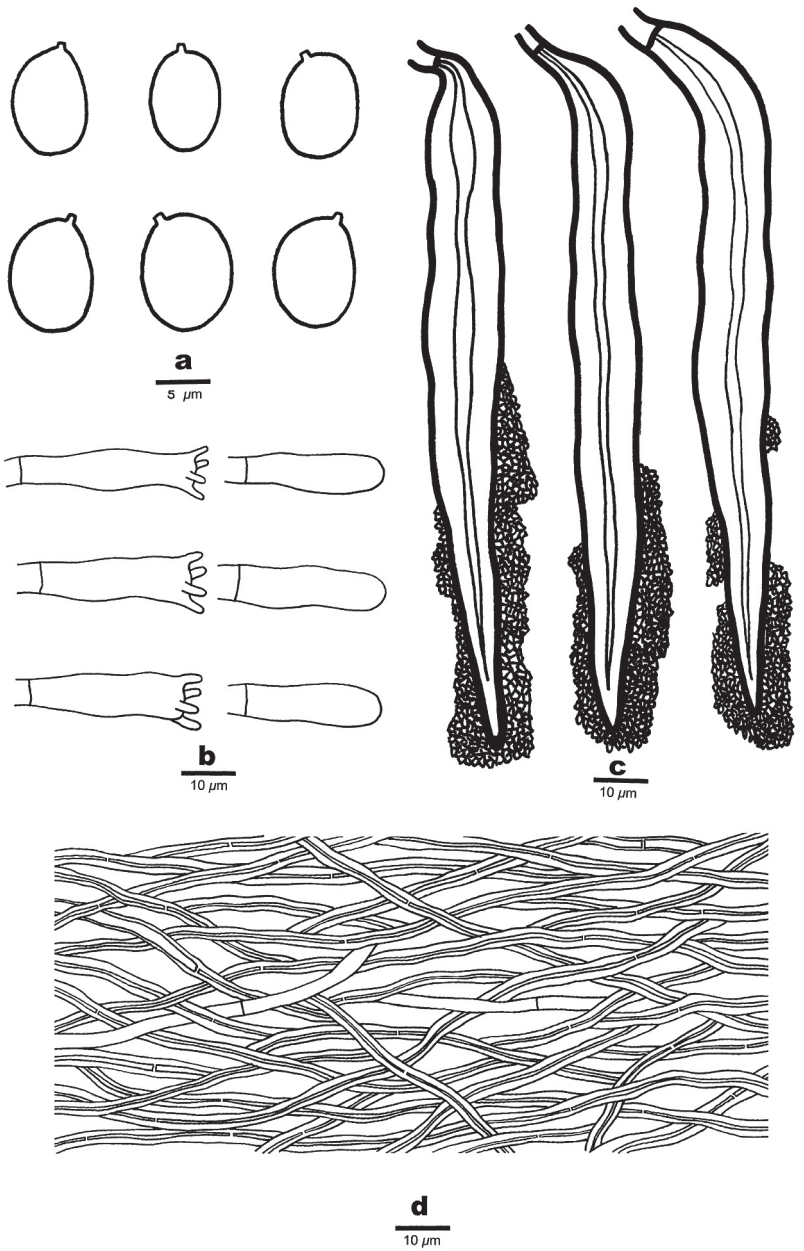

Fig. 2. Microscopic structures of *Hymenochaete megaspora* (drawn from the holotype). a: Basidiospores. b: Basidia and basidioles. c: Setae. d: Hyphae from subiculum.

μm), but *H. gigaspora* differs in having smaller setae without encrustation (75–100 × 5–10 μm), and lacking a cortex and tomentum (Léger 1998, Parmasto 2005). Another similar species, *H. tabacina* (Sowerby) Lév., which also has encrusted setae and a cortex, can be distinguished by its smaller basidiospores (4.5–7 × 1.2–2.2 μm) and presence of setal hyphae (Parmasto 2001).

Macroscopically, *Hymenochaete megaspora* is similar to *H. rigidula* Berk. & M.A. Curtis, which is another common species on *Quercus* in Xizang Autonomous Region. However, *H. rigidula* has shorter setae (40–60 × 7–12 μm) and smaller basidiospores (3.7–5 × 1.5–2.3 μm, Parmasto 2001).

Hymenochaete acerosa S.H. He & Hai J. Li, **sp. nov.** Figs. 3–4

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Carpophorum annuum, effusum, adnatum, molle, 200–600 μm crassum. Hymenophorum laeve, azonatum, non crevisum, cinnamomeum vel flavo-brunneum. Cortex et tomentum desunt, stratum hypharum adest. Systema hypharum monomiticum, hyphae generativae non fibulatae, in subiculo hyalinae vel flavo-brunneae, crasse tunicatae, ad angulum 90° frequanter ramosae, septatae, laxe intertextae, 2–5 μm diam; setae in hymeniis stratosis numerosae, flavo-brunneae, acerosae, acutae, interdum curvatae vel leviter sigmoideae, (55–)85–170(–180) × 5–8(–9) μm; hyphidia et cystidia desunt; basidia clavata, 4 sterigmatibus praedita, 13–21 × 5–8 μm, ad basim uniseptata; sporae ellipsoideae vel late ellipsoideae, hyalinae, tenuiter tunicatae, laeves, IKI–, CB–, (6.5–)7–8.5(–9) × (4.6–)4.8–6 μm.

Type: China. Xizang Autonomous Region, Linzhi County, Lulang, alt 3700 m, on dead angiosperm branch, 18.IX.2010 He 344 (**Holotype,** BJFC).

Etymology — *acerosa*, refers to the acerose setae.

Fig. 3. Fruitbody of *Hymenochaete acerosa* (He 344, holotype).

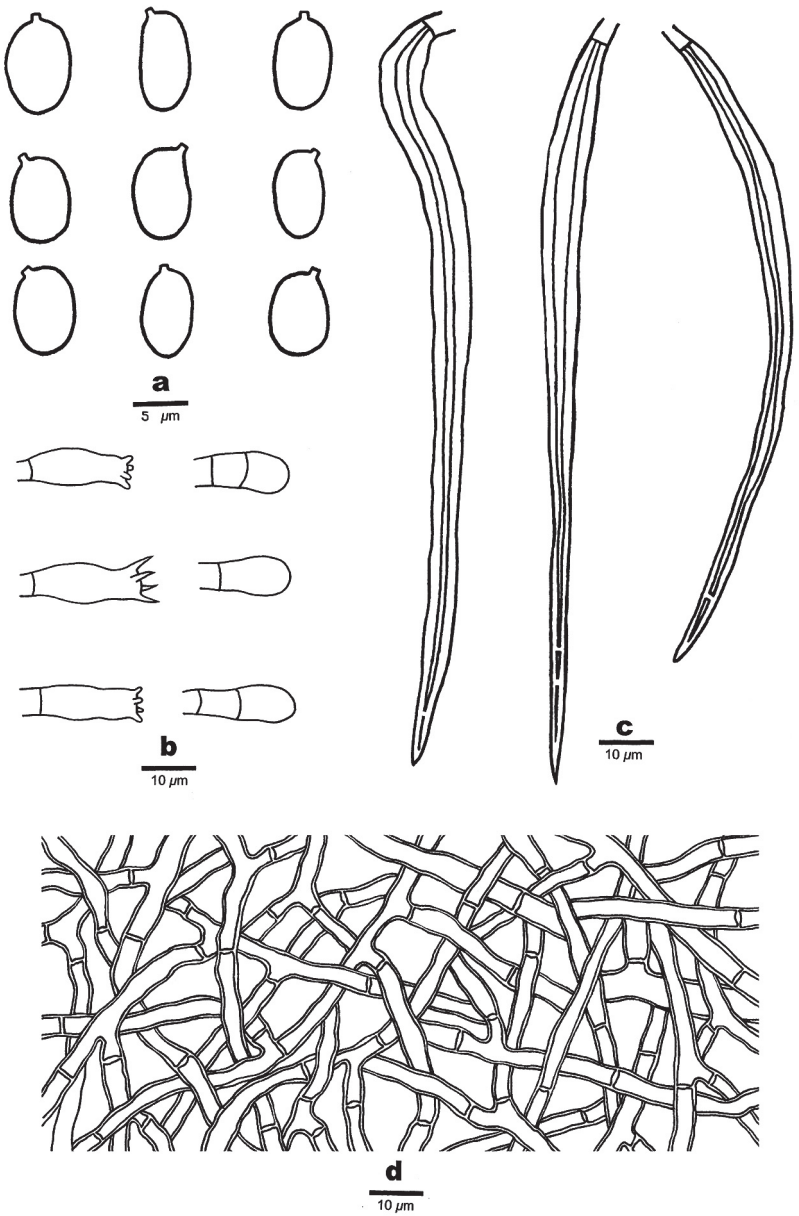

Fig. 4. Microscopic structures of *Hymenochaete acerosa* (drawn from the holotype). a: Basidiospores. b: Basidia and basidioles. c: Setae. d: Hyphae from subiculum.

Fruitbody: Annual, effused, adnate, detachable, soft, first as small colonies, later confluent up to 15 cm or more in longest dimension, 200–600 μm thick. Hymenophore smooth, azonate, cinnamon to yellowish brown, usually not cracked; margin thinning out, indistinct, byssoid, concolorous with hymenophore.

Hyphal structure: Hyphal system monomitic; generative hyphae without clamp connections; tissue darkening but otherwise unchanged in KOH.

Subiculum: Cortex and tomentum absent, hyphal layer present. Generative hyphae hyaline to yellowish brown, thick-walled with a wide lumen, frequently branched at a right angle, with numerous simple septa, loosely interwoven, 2–5 μm in diam.

Stratified hymenium: Hyphae in this layer similar to those in subiculum, yellowish to yellowish brown, thick-walled, more or less agglutinated, interwoven, 2–4 μm in diam. Setae numerous, yellowish brown, acerose with acute tip, sometimes curved or slightly sigmoid, projecting up to 100 μm above the hymenium, (55–)85–170(–180) × 5–8(–9) μm; cystidia and hyphidia absent; basidia clavate, with four sterigmata and a simple septum at base, 13–21 × 5–8 μm; basidioles in shape similar to basidia, but smaller.

Spores: Basidiospores ellipsoid or broadly ellipsoid, hyaline, thin-walled, smooth, IKI–, CB–, (6.5–)7–8.5(–9) × (4.6–)4.8–6 μm, L = 7.69 μm, W = 5.30 μm, Q= 1.40–1.50 (n = 60/2).

Additional specimens (paratypes) examined: **CHINA. Xizang Autonomous Region**, Linzhi County, Lulang, alt 3700 m, on dead angiosperm branch, 18.IX.2010 He 338; 25.IX.2010 He 399 (Paratypes, BJFC).

Remarks: *Hymenochaete acerosa* is distinguished by the very long and narrow (acerose) setae, large basidiospores, and loosely interwove hyphae. It is similar to *H. depallens* Berk. & M.A. Curtis, which also has long setae and loosely interwove hyphae; however, the new species differs in having narrower setae (85–170 × 5–8 μm vs. 80–150 × 9–13 μm), larger basidiospores (7–8.5 × 4.8–6 μm vs. 6–7.3 × 3.7–4.2 μm), and an uncracked hymenophore (Léger 1998, Parmasto 2005).

Hymenochaete acerosa is superficially similar to *H. cinnamomea* (Pers.) Bres., which differs in having shorter setae (70–120 × 5–9 μm), smaller basidiospores (4.5–6.5 × 1.8–2.8 μm), and always stratified hyphal and setal layer (Léger 1998, Parmasto 2001).

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